WHAT IS CLAIMED IS:

1. A sealed sample pan for use in a thermogravimetrical analyzer autosampler comprising:

(a) a pan in which the sample is placed;

(b) a cover which is placed on the pan and sealed to it; and

(c) a notch formed on the flat part of the cover in which the thickness of the cover is locally reduced defining a central disk portion of the cover, such that the central disk portion can be partially sheared from the cover by the application of a force on the central disk portion.

2. The sealed sample pan for use in a thermogravimetrical analyzer autosampler of claim 1, wherein the notch is formed on the top of the flat part of the cover.

3. The sealed sample pan for use in a thermogravimetrical analyzer autosampler of claim 1, wherein the notch is formed on the bottom of the flat part of the cover.

4. The sealed sample pan for use in a thermogravimetrical analyzer autosampler of claim 1, wherein the pan is constructed of at least one of the group comprising aluminum, stainless steel, gold, and platinum.

5. The sealed sample pan for use in a thermogravimetrical analyzer autosampler of claim 1, wherein the cover is constructed of at least one of the group comprising aluminum, stainless steel, gold, and platinum.

6. The sealed sample pan for use in a thermogravimetrical analyzer autosampler of claim 1, wherein the cover is sealed to the pan by means of a dedicated pressing tool.

7. The sealed sample pan for use in a thermogravimetrical analyzer autosampler of claim 1, further comprising a bail to hold the sealed sample pan and to provide an interface to the thermogravimetrical analyzer balance hang-down hook.

8. The sealed sample pan for use in a thermogravimetrical analyzer autosampler of claim 7, wherein the bail is constructed of at least one of the group comprising aluminum, stainless steel, gold, and platinum.

9. The sealed sample pan for use in a thermogravimetrical analyzer autosampler of claim 7, wherein the bail is constructed of formed wire.

10. The sealed sample pan for use in a thermogravimetrical analyzer autosampler of claim 7, wherein the bail is constructed of sheet metal.

11. The sealed sample pan for use in a thermogravimetrical analyzer autosampler of claim 1, wherein the notch is shaped in the form of a circle.

12. The sealed sample pan for use in a thermogravimetrical analyzer autosampler of claim 1, wherein the notch is shaped in the form of a polygon.

13. The sealed sample pan for use in a thermogravimetrical analyzer autosampler of claim 1, wherein the notch is shaped in the form of an oval.

14. The sealed sample pan for use in a thermogravimetrical analyzer autosampler of claim 1, wherein the notch is shaped in the form of a teardrop.

15. A system for automatically opening a sealed sample pan used in a thermogravimetrical analyzer autosampler comprising:

(a) a sealed sample pan whose flat cover contains a notch of locally reduced thickness;

(b) an autosampler, including an autosampler tray;

(c) a punch element;

(d) a means for pressing the punch element against the top cover of the sealed sample pan; and

(e) a means for detecting the rapid change of an applied force.

16. The system for automatically opening a sealed sample pan used in a thermogravimetrical analyzer autosampler of claim 15, wherein the notch is formed on the top of the flat part of the cover.

17. The system for automatically opening a sealed sample pan used in a thermogravimetrical analyzer autosampler of claim 15, wherein the notch is formed on the bottom of the flat part of the cover.

18. The system for automatically opening a sealed sample pan used in a thermogravimetrical analyzer autosampler of claim 15, wherein the means for detecting the rapid change of an applied force is a force sensor.

19. The system for automatically opening a sealed sample pan used in a thermogravimetrical analyzer autosampler of claim 15, wherein the means for detecting the rapid change of an applied force is a strain sensor.

20. The system for automatically opening a sealed sample pan used in a thermogravimetrical analyzer autosampler of claim 15, wherein the means for pressing the punch element against the top cover of the sealed sample pan is moving the punch element down.

21. The system for automatically opening a sealed sample pan used in a thermogravimetrical analyzer autosampler of claim 15, wherein the means for pressing the punch element against the top cover of the sealed sample pan is moving the autosampler tray up.

22. The system for automatically opening a sealed sample pan used in a thermogravimetrical analyzer autosampler of claim 15, further comprising a bail to hold the sealed sample pan and to provide an interface to the thermogravimetrical analyzer balance hang-down hook.

23. The system for automatically opening a sealed sample pan used in a thermogravimetrical analyzer autosampler of claim 15, wherein the notch is shaped in the form of a circle.

24. The system for automatically opening a sealed sample pan used in a thermogravimetrical analyzer autosampler of claim 15, wherein the notch shaped in the form of a polygon.

25. The system for automatically opening a sealed sample pan used in a thermogravimetrical analyzer autosampler of claim 15, wherein the notch is shaped in the form of an oval.

26. The system for automatically opening a sealed sample pan used in a thermogravimetrical analyzer autosampler of claim 15, wherein the notch is shaped in the form of a teardrop.

27. A method for automatically opening and loading a sealed sample pan used in a thermogravimetrical analyzer autosampler comprising:

(a) opening the sealed sample pan by providing the sealed sample pan, having a cover, with a notch defining a central disk portion of the cover and applying a concentrated force to the central disk portion of the cover;

(b) determining if an opening was made; loading the sealed sample pan if the opening was made; and

(c) moving to the next sample pan if the opening was not made.

28. The method of claim 27, wherein the notch defining the central disk portion of the cover is provided by reducing locally the thickness of the top flat surface of the cover.

29. The method of claim 27, wherein the notch defining the central disk portion of the cover is provided by reducing locally the thickness of the bottom flat surface of the cover.

30. The method of claim 27, wherein the concentrated forced is applied by pressing a punch element against the central disk portion of the cover.

31. The method of claim 30, wherein the punch element is pressed against the central disk portion of the cover by moving the punch element down.

32. The method of claim 30, wherein the punch element is pressed against the central disk portion of the cover by moving an autosampler tray up to the punch element.

33. The method of claim 27, wherein determining if an opening was made is determined by detecting a rapid change of the applied concentrated force.

34. The method of claim 33, wherein the rapid change of the applied concentrated force is detected using a force sensor.

35. The method of claim 33, wherein the rapid change of the applied concentrated force is detected using a strain sensor.

36. The method of claim 27, wherein the notch defining the central disk portion is shaped in the form of a circle.

37. The method of claim 27, wherein the notch defining the central disk portion is shaped in the form of a polygon.

38. The method of claim 27, wherein the notch defining the central disk portion is shaped in the form of a oval.

39. The method of claim 27, wherein the notch defining the central disk portion is shaped in the form of a teardrop.

40. An autosampler comprising:

(a) a sample tray;

(b) a tray rotation motor;

(c) a tray rotation sensor;

(d) a tray lift motor;

(e) a tray lift sensor;

(f) a tray translation motor;

(g) a tray translation sensor;

(h) an electronic control unit;

(i) a housing;

(j) a sealed sample pan whose flat cover contains a notch of locally reduced thickness;

(k) a punch element;

(l) a means for pressing the punch element against the top cover of the sealed sample pan; and

(m) a means for detecting the rapid change of an applied force.

41. A thermogravimetrical analyzer comprising:

(a) a balance;

(b) a furnace;

(c) an electronic control unit;

(d) a user interface;

(e) a cabinet;

(f) a sealed sample pan whose flat cover contains a notch of locally reduced thickness;

(g) an autosampler, including an autosampler tray;

(h) a punch element;

(i) a means for pressing the punch element against the top cover of the sealed sample pan; and

(j) a means for detecting the rapid change of an applied force.